

MAESA (MYRSINACEAE) IN MICRONESIA

By F. R. Fosberg and Marie-Hélène Sacht

The genus Maesa has many, mostly ill-distinguished species in the Indo-Pacific region. Four of these, one with three varieties, occur in Micronesia, all probably endemic. We present a tentative treatment with descriptions and a key. Two of the species and one variety are described here as new.

Maesa Forsk., Fl. aeg.-arab. 66, 1775.--Mez. Pflanzenr. IV, 236: 15-54, 1902.--A. C. Smith, Jour. Arn. Arb. 54: 3-36, 1973.

Shrubs or small trees, leaves simple, margins entire to dentate, pinnately veined, with secretory canals in the tissues, sometimes appearing as glandular lines or areolations on the surfaces; flowers in simple or branched racemes, these one or more in an axil, or in loose terminal panicles, with bracts at bases and apices of pedicels; flowers 4- or 5-merous, sepals imbricate or not at bases, margins often glandular-erose, surfaces usually gland-dotted; corolla deeply or shallowly lobed, tube included in or somewhat exerted from the calyx; anthers inserted in front of and below corolla lobes; ovary inferior or partly so, ovules many on a central placenta, hypanthium with or without longitudinal ridges or glandular lines, style short, from a lobate disk, stigma subcapitate to somewhat lobate; fruit baccate, crowned by persistent calyx, seeds loose or coherent in a mass embedded in pulp.

A. C. Smith (Jour. Arn. Arb. 54: 3-6, 1973) in discussing the Fijian Maesa species, has aptly described the taxonomic problems presented by this genus. The Micronesian species, though fewer, are fully as difficult. Here is offered a tentative treatment of the Micronesian species with a key which, it is hoped, may enable others to name specimens and possibly delimit populations in the field. Two new species and one new variety are described.

A character used in this key which may be unfamiliar, perhaps peculiar to the Myrsinaceae and especially to Maesa, is the presence of what have been called "nervilliiform lines" (Mez), "resiniferous lines" (Mez), or "secretory canals"

(Smith) in the tissue of the leaves. These are not always evident in dried specimens though frequently more so in cleared preparations. In certain species, including 3 out of the 4 Micronesian ones, they show up as fine sinuously parallel lines forming a network or areolation, easily mistaken for a venation pattern. However, this areolation, dark in color, is seen, when magnified, to be independent of the network of veins. In the following key and descriptions, it is only mentioned if it shows up at least on the under surface of relatively young leaves in dried specimens. The areolation is usually somewhat elongate parallel to the principal side veins.

Key to Micronesian Taxa

1. Flowers tetramerous, young growth pilose.....
..... Maesa canfieldiae
1. Flowers pentamerous, young growth scurfy to subglabrous...2
 2. Nervilliform lines forming an areolation with cells elongate parallel to the lateral nerves.....3
 3. Immature fruit with prominent vertical dark lines, stigma included in calyx, lenticels large, abundant on branches..... Maesa walkeri
 3. Immature fruit not lineate, stigma slightly exserted from calyx in young fruit, lenticels present but small and not abundant
..... Maesa palauensis
 2. Nervilliform areolation lacking or at least not easy to see (Maesa carolinensis).....4
 4. Pedicels about 1 mm long or less.....
..... Maesa carolinensis var. subsessilis
 4. Pedicels over 1 mm, elongating to 3-4 mm, becoming reflexed in fruit.....5
 5. Leaves mostly broadly obovate, contracted to an acute or attenuate base.....
..... Maesa carolinensis var. carolinensis

5. Leaves mostly broadly ovate to very broadly elliptic, base founded to subcordate

Maesa carolinensis var. kusaiensis

Maesa canfieldiae Fosberg & Sachet, n. sp.

Frutex vel arbuscula ramulis bruneolis minute lenticellatis brevi-pilosis, folia oblonga vel anguste ovata vel obovata acuminata marginibus subintegris supra sparse strigulosi infra costis venisque brevi-pilosis nervilliformi-lineolatis longiareolatis, petiolis 1-1.5 cm, racemis axillaribus solitariis 1-2 cm longis vix ramosis sparse pilosulis, bracteis pedicellorum grandis vix connatis late ovato-deltoides hispidulis lineatis, flore 4-mero, corolla tubo 203 plo lobis, bacca globosa lineata. (Typus: Angaur, Canfield 693 (US)).

Shrub or small tree, with slightly zigzag brown minutely lenticellate shortly pilose branchlets; leaves oblong to narrowly ovate or narrowly obovate, apex prominently acuminate, base rounded, margin subentire, upper surface sparsely appressed hirtellous, under surface paler, pilosulous on midrib and principal veins, with fine "nervilliform lines" parallel with main nerves, forming an elongate areolation quite visible to naked eye, petiole 1-1.5 cm, shortly pilose; racemes axillary, solitary, 1-2 cm long, not or very rarely branched, sparsely pilosulous, rhachis-bracts minute, acuminate, notably pilosulous, pedicels 1-2 mm long, bracts at their summits large, broadly ovate-deltoid, slightly carinate, slightly connate at least on one side, hispidulous, lineate, margin slightly glandular-erose; flowers 4-merous, calyx lobes broadly ovate, obtuse, lineate, glandular, hypanthium strongly glandular, corolla with tube 2-3 times the length of the lobes, sub-urceolate, strongly and closely lineate, lobes rounded to obtuse, some slightly mucronulate, anthers included, orbicular, on short filaments, inserted part-way up tube, style very short, included in calyx in fruit, stigma truncate, depressed in center; immature fruit globose, with many raised longitudinal dark brown lines, mature fruit globose, about 5 mm diameter, white, juicy, sweet, edible; seeds obpyramidal, mature ones unavailable.

This species is known only from Angaur, Palau, and is said by the local inhabitants to have only been known to them since World War II. It may well be an introduction from elsewhere, but we have not been able to match it. It seems closest to

to obtuse or slightly bluntly acuminate, lower surface minutely puncticulate, veins 5-8 on a side, petiole 2-4 cm; racemes slender, up to 10 cm, scarcely scurfy, very densely flowered, pedicels to 4 mm, becoming reflexed, rhachis bracts ovate-triangular, bracts at summit of pedicel very broadly ovate, with very wide hyaline margins, margins of bracts and calyx lobes glandular-erose, calyx lobes broadly triangular-ovate, obtusish to acute, scarcely auriculate, black-dotted; corolla tube slightly exceeding calyx, lobes rounded, with dark veins when dry; style somewhat exserted from calyx in young fruit, stigma small, peltate.

Endemic to Ponape.

Caroline Is.: Ponape: s.l., Kanehira 837 (US), 1634 (US), 1557 (P); Langar, Hallier 92 (HBG, US); Paue, Monte Santo, 700 m, Ledermann 13586a (B, syntype, here designated as lectotype); Patapat, Abh. des Tols, 20-600 m, Ledermann 13187 (B, syntype).

Maesa carolinensis var. kusaiensis Fosberg & Sachet, n. var.

Folia late ovata vel late elliptica basi rotundata vel subcordata, rachidibus racemorum juniorum spadiceis-furfuraceis a var. carolinensis divergens. (Typus: Hosokawa 6341 (US)).

Leaves broadly ovate to very broadly elliptic, base rounded to subcordate, apex obtuse to broadly and bluntly slightly acuminate, petiole 1-3 cm; racemes only very shortly or scarcely pedunculate, rhachis and pedicels brownish scurfy when in flower. Otherwise as in var. carolinensis.

Endemic to Kusaie.

Caroline Is.: Kusaie: without loc., Kanehira 1359 (US); H. F. Moore 82 (US); Malemu, utwa, Fenkil-sanroku, VII. 31, 1933, Hosokawa 6341 (US, holotype, 2 sheets).

Maesa carolinensis var. subsessilis Hosokawa, Jour. Jap. Bot. 13: 612-613, 1937.

Leaves as in var. carolinensis but usually somewhat narrower (except in Hallier 93 and Evans 1263), petiole 1-2 cm, racemes usually fascicled, on dwarf branchlets, 2-4(-5) at a node, not pedunculate, not or scarcely scurfy, pedicels mostly

M. papuana Warb., to which it keys in Mez monograph (Pflr. IV, 236: 16-23, 54, 1902), and to M. tetrandra (Roxb.) A. DC., to which it keys in Backer and Bakhuizen, Flora of Java 2: 195, 1965. From M. papuana it differs in the abundant pilose rather than scurfy indument and the much larger leaves with longer petioles. From M. tetrandra it differs in the rounded rather than ovate-triangular corolla lobes, the included rather than exerted stamens, the much shorter leaf-pubesence, and the prominent rather than obscure or absent nervilliform areolation. It agrees with both these species in the long corolla tube and tetramerous flowers.

Caroline Is.: Palau Is.: Angaur I.: along road NE of boat basin, 3 m, Canfield 693 (US, holotype); along old road, parallel to and W of airstrip, 4 m, Canfield 210 (US); 0.6 mi. E of boat basin, 3 m, Canfield 416 (US); along road above S bank of NW lake, 10 m, Canfield 759 (US); along road 1/4 mi. W of S end of airfield, 3 m, Canfield 767 (US).

Named for the collector of all of the known specimens, Miss Joan Canfield, former Smithsonian Peace Corps volunteer botanist who made notable collections in Palau in 1977-1979.

Maesa carolinensis Mez, Bot. Jahrb. 56; 535, 1921.

Shrub or small tree, young parts and racemes glabrous to somewhat scurfy, twigs rather prominently lenticellate; leaves with medium to broad blades, not noticeably nervilliform-areolate, margins entire to slightly undulate, petioles much shorter than blades; racemes 1 to usually several in an axil, nearly as long as leaf blades, pedicels becoming reflexed, bracts minute, those at summit of pedicel to 2 mm long; flowers 5-merous, corolla tube included in calyx; immature and mature fruit without vertical lines or ridges, about 3 mm diam. (Type: Ponape, Ledermann 13586a (B)).

Endemic to Eastern Caroline Islands, one variety each on Truk, Ponape and Kusaie.

Maesa carolinensis Mez var. carolinensis

Glabrous, leaves tending to be broadly obovate, up to 24 cm long contracted to an acute or attenuate base, apex rounded

less than 1 mm long, even in fruit; calyx lobes rounded, tending to become acute in young fruit, disk very small, stigma included in persistent calyx.

Endemic to Truk Group.

Caroline Is.: known from Moen, Dublon, Fefan, Tadiu, Eten, Tol islands. Vernacular name "erenippoi."

Caroline Is.: Truk: s.l. Koidzumi in 1915 (US); Moen I., 100-400 m, Evans 1263 (US, BISH); Dublon I., Hosokawa 6540 (US); Tol I. Hosokawa 8322 (US, isotype); Mt. Tumital, Fosberg 24454 (US, BISH, Fo); "auf dem Tolowan," Hallier 93 (HBG, US).

Maesa palauensis Mez, Bot. Jahrb. 56: 536, 1921.

Maesa sp., Kawagoe, Bull. Kagoshima Imp. Coll. Forestry 3: 188, 1918.

Shrub or small tree, branchlets slightly zigzag, only moderately lenticellate, youngest parts rusty scurfy; leaves very broadly elliptic or ovate to suborbicular, apex bluntly somewhat acuminate or acutish to obtuse or rounded, base obtuse to rounded or subtruncate, margin irregularly slightly undulate, slightly revolute, main veins 6-8, nervilliform areolation of under side of young leaves tending to be dark and areolae somewhat elongate parallel to direction of main veins, crossed by occasional heavier veins, petiole 2.5-5 cm long; racemes 3-8 cm long, not pedunculate, well-developed ones with one to several branches near base at nearly 90° to rachis, not particularly scurfy even when young, bracts at bases of pedicels about 1 mm long, ovate triangular, the pair at summit of pedicels similar, slightly broader, slightly acuminate or not; calyx lobes triangular-ovate, usually somewhat acuminate, somewhat hyaline-margined, slightly glandular-erose; corolla tube included or somewhat exserted from calyx, lobes rounded; style included in calyx, even in fruit, very short, stigma scarcely larger than style, obscurely lobate, center tending to be depressed, disk lobate, decurrent on style; fruit globose, fleshy, about 3 mm thick, white or pinkish white, crowned by somewhat appressed or connivent calyx lobes, at least when immature not lineate. (Type: Palau, Koror, Ledermann 14084 (probably destroyed)).

Most easily distinguished from M. carolinensis by the visible nervilliform areolation on young leaves and the more frequently branched racemes.

Known only from the Palau Islands, widely distributed there. Vernacular names "ngalibeab," "detimel," "bleagd."

Caroline Is.: Palau: "Coral Is." Kanehira 2547 (US); S Babel-daob, Airai Munic., along airport road W of Gihmel R., Canfield 579 (US); NE Koror, 1/2 mi. S of Koror-Babeldaob bridge, 4 m, Canfield 569 (US); 5-10 m, "ngalibeab" (sterile), Fosberg 32100 (US, BISH, Fo, NY); north section, 25 m, Hosaka 3324 (US, BISH, Fo, NY); Ngermid, Salsedo 344 (US); Tor Uil I.: between Koror and Malakal, 3 m, "detimel," Fosberg 47604 (US, BISH, Fo); Todai-yama, Kanehira 1869 (US, P); Urukthapel: east end of island, 1 m, Fosberg 32020 (US, BISH, Fo, NY, L); s.l., Dutton 89 (US, BISH, Fo); south side of SW peninsula 1-2 m, Fosberg 32228 (US, BISH, Fo, NY, L); Dutton 89 (US, BISH, Fo); Peliliu: Tuyama s.n. in 1937; Blackburn 284 (US, BISH); Purple Beach, east coast, coral spit, 2 m, Fosberg 32007 (US, BISH, Fo, NY, L); Angaur: northwest corner of island, 25 m, Fosberg 25898 (US, BISH, Fo, NY, L); NW Angaur, S of NW Pond, 10 m, Canfield 698 (US); roadside midway between Lakes A & D, 10 m, Canfield 207 (US).

Maesa walkeri Fosberg & Sachet n. sp.

Maesa sp. Fosberg, Checklist Guam Pl. 79, 1960.

Frutex vel arbuscula, ramulis castaneis, conspicue albo-lenticellatis, glabris praeter pars juvenibus spadiceo-furfuraceis; folia ovata vel late-ovata plerumque acuta basi rotundata vel subcordata saepe inaequalibus, marginibus leviter dentatis vel subintegris, petiolis gracilis 1-3 cm; racemis axillaribus maxime 9 cm raro ramosis, pedicellis 2-4 mm, post anthesin reflexis, bracteis deltoideis; lobis corollis 5, orbicularibus in sicco venosis; bacca globosa lineata 5-6 mm diametro. (Typus: Rota, Fosberg 31858 (US)).

Shrub or small tree, to at least 3 m tall, branchlets reddish brown, conspicuously white-lenticellate, not or scarcely zigzag, glabrous except youngest growth brown-scurfy; leaves ovate to broadly ovate, varying greatly in size from plant to plant, 5-12 cm long, apex usually bluntly acute, rarely

obtusish, base rounded to truncatish or subcordate, frequently the two sides somewhat unequal, margins shallowly dentate to subentire, midrib red, nerves 5-9 on a side, reddish, tending to be somewhat closer together near base, nervelliform areolation clear beneath, somewhat elongate parallel to nerves, petioles slender, 1-3 cm long; racemes up to 9 cm long, usually much less, rarely branched, with pedicels nearly to base, bracts firm, triangular, acute, pale or, rarely, black margined, pedicels becoming reflexed in fruit, 2-4 mm long; calyx lobes broadly ovate, acutish, slightly glandular-erose; corolla white, tube subequal with calyx, lobes orbicular, auriculate, abundantly marked with dark red or brown veins when dry; anthers orbicular, about 0.5 mm across, on short filaments; style about 0.5 mm long, funnel-shaped at apex, stigmatic margin irregularly 5-lobed; fruits globose or subglobose with numerous fine vertical lines or ridges when almost mature or mature, 5-6 mm in diameter, fleshy, translucent white or pink when mature, soft, with little flavor but somewhat refreshing when eaten; seeds dark brown, roughly tetrahedral, angular, about 1 mm long, surface dull, cellular-reticulate.

Probably closest to *M. palauensis*, but differing in unbranched racemes and conspicuously lined immature fruits. Known only from Rota and Guam in the southern Marianas.

Marianas Is.: Rota: road to Sabana area, 200-400 m, Sachet 1800 (US, BISH); west end of island above Songsong, 200-300 m, Sachet 1778 (US, BISH, POM, MO, L); second terrace from top, 320m, Fosberg 31858 (US, holotype, BISH, Fo, NY, L, isotypes); trail up to Sabana region, 150-250 m, Evans 2134 (US, BISH, Fo, NY, L).

Guam: south peak of Mt. Lamnam, 380 m, Fosberg & Evans 46243 (US, BISH, Fo, MO, L); ridge south of Mt. Lamnam, 385 m, Fosberg 35331 (US, BISH, Fo, NY, L); track from Cetti Bay lookout to top of Mt. Lamnam, 200-405 m, Evans 1721 (US, BISH, Fo, NY, L); Mt. Lamnam, 370 m, Fosberg 46249 (US, BISH, Fo, NY); Moran 4708 (US), Moore 243 (US).

Dedicated to Dr. Egbert H. Walker, for many years a leading authority on the Myrsinaceae.